

REMARKS

The Office Action mailed on June 6, 2003 has been carefully considered and the Examiner's remarks are appreciated. Claims 1-80 were subject to restriction requirement. Applicants elected claims 17-29 and 54-67, with traverse. Claims 17, 19, 20, 22, 23, 56, 58, 59, and 64 have been amended, and claims 28 and 29 have been cancelled. Therefore claims 17-27, and 54-67 are presented for examination, with support for the amendments found in the Specification, Claims, and Drawings. In response to the Office Action, Applicants respectfully request reconsideration in view of the above amendments and the following remarks.

Discussion of the Office Action

In the Office Action, the Examiner rejected claims 17-27 and 54-67 under 35 U.S.C. 112, first and second paragraphs. And the Examiner also rejected claims 17-27 and 54-67 under 35 U.S.C. §103(a).

Statement Concerning Common Ownership for 103(c)

Application serial number 10/032,758 and U.S. Pat. No. 5,505,799 and U.S. Pat. No. 5,773,748 were, at the time the invention of Application 10/032,758 was made, owned by, or subject to an obligation of assignment to, The Regents of the University of California.

Discussion of Rejections under 35 USC §112

Claims 17-27 and 54-67 were rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement with regard to "limited life" in the disclosure. In support of this rejection, the Examiner incorporated by reference the reasons set forth in parent

application S/N 08/998,370 for the rejections therein which the Examiner asserted were affirmed by the Board of Appeals. Additionally, Claims 17-27 and 54-67 were also rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter which is the invention. Here too, the Examiner asserted that the term "limited life" is unclear, and that the metes and bounds of the invention cannot be reasonably determined.

With respect to the rejection based on 112 second paragraph, it is respectfully submitted that the Board of Appeals in the above-mentioned decision has clearly recognized the term "limited life" as being not indefinite. Rejecting the Examiner's reasons, the Board stated, *"While the claim recitation may be very broad, in our view it is not indefinite, for one of ordinary skill in the art would understand what is meant."* And with regard to claim 58, Applicants have removed the "etc." term which the Examiner also stated was indefinite.

With respect to the rejection based on 112 first paragraph, Applicants have amended the claims, including independent claims 17 and 64, pursuant to the Board's comments in the aforementioned parent case with respect to the "enablement" requirement, and not the "written description" requirement as asserted by the Examiner. Thus amended claims 17 and 64 each specifies the steps necessary to enable one of ordinary skill in the art to make and use the invention without undue experimentation. In particular, the claim 17 now includes the limitation: *"selecting at least two materials of the inorganic reactive material, of a type characterized by time-dependent interdiffusion of elements therebetween which reduces stored energy and reactivity in a metastable reactive interface thereof without producing a passivation layer."* Moreover, once the materials for the inorganic reactive material are selected, claim 17 further requires, *"contacting said at least two materials with each other in an arrangement adapted to achieve a desired limited-time based on said known time-dependent interdiffusion characteristics of the selected at least two materials..."* It is

submitted that these limitations provide the “basic and important details” sought by the Board. For example, formation of the limited-time cartridge primers is hinged upon the selection of the appropriate materials having the requisite interactive characteristics, and the arrangement of the materials which is itself dependent on the known characteristics of the selection. Thus amended claim 17 establishes the basic relationship between material selection, material arrangement (e.g. structure and layer thickness), and desired shelf life necessary to practice the invention without undue experimentation. And amended claim 64 has similar limitations to that of amended claim 17. Thus, it is respectfully submitted that the 112 first paragraph rejections are no longer applicable to claims 17-27 and 54-67, as amended.

Discussion of Rejections under 35 USC §103(a)

The Examiner also rejected claims 17-27 and 54-67 under 35 USC §103(a) as unpatentable over U.S. Pat. No. 5,717,159 to Dixon et al (hereinafter “Dixon”), in view of U.S. Pat. No. 5,606,146 to Danen et al (hereinafter “Danen”). In support of his rejections, the Examiner stated that Dixon teaches preparing a primer that contains MIC (metastable interstitial composite) of Danen, and that “it is further obvious the “metastable” explosive must inherently have a limited life” (emphasis added). It is respectfully submitted, however, that the Examiner has failed to make a prima facie case of obviousness, as required by MPEP §2143.03 as follows in part:

“To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art”

Neither Dixon or Danen, together or independently, teach or suggest all the claim limitations of the present invention, as originally filed, e.g. in original independent claim 17. Danen in particular describes in detail MIC’s of a type having a buffer layer located, in all cases, between two reactive

layers, such as Al and CuO. The “buffer layer” is described in column 3 lines 25-33 of Danen, as being formed due to a reaction between Al and CuO. It is appreciated that this buffer reaction is a passivation reaction between two reactive materials, where “passivation” is described in, for example, the “Electrochemistry Dictionary” website (<http://electrochem.cwru.edu/ed/dict.htm>) as: “*The formation of a thin adherent film or layer on the surface of a metal or mineral that acts as a protective coating to protect the underlying surface from further chemical reaction...*” (emphasis added). In contrast, original claim 1 included the limitation, “*forming an explosive from a quantity of inorganic reactive material having time-dependent interdiffusion of elements which reduces stored energy and reactivity thereby producing a limited-life of the explosive.*” The passivation reaction to produce the buffer layer in Dannen cannot reasonably be construed as a time-dependent interdiffusion, especially considering the relative long time periods (days, months, years) contemplated in the present invention.

In any case, Applicants have amended independent claims 1 and 64 to clarify the distinctions with the prior art, especially Dannen, by including the language, “*selecting at least two materials for said inorganic reactive material, said at least two materials of a type characterized by time-dependent interdiffusion of elements therebetween which reduces stored energy and reactivity in a metastable reactive interface thereof without producing a passivation layer*” (emphasis added), among others. Thus, in the present invention, while stored energy and reactivity is reduced over time by inter-diffusion of elements, it is not the same or similar chemical reaction taking place in a passivation reaction. This difference can also be realized in the choice of reactive materials selected in Danen, compared to the present application. The preferred example discussed in Danen utilizes Al and CuO in layered relation which produces the buffered layer. In the present invention, Al and CuO are also described in the three layer multilayer structure, in the form of a Al-C-CuO layered

arrangement. The carbon is interpositioned between the Al and CuO to prevent unwanted passivation reaction from occurring, (described on page 13, paragraph 44 with respect to Ti-C-CuO multilayer). Because of this distinction, it is respectfully submitted that the Examiner's conclusion that the use of a metastable explosive inherently yields the limited-life cartridge of the present invention, is incorrect.

Summary

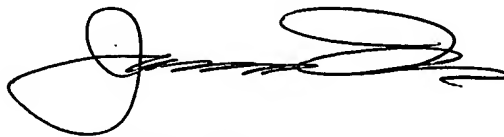
Having amended the claims and/or overcome Examiner's rejections as discussed above, Applicant respectfully submits that claims 17-27 and 54-67 are in condition for allowance. Applicants respectfully request allowance of claims 17-27 and 54-67.

In the event that the Examiner finds any remaining impediment to the prompt allowance of these claims that could be clarified with a telephone conference, he is respectfully requested to initiate the same with the undersigned at (925) 422-7274.

Respectfully submitted,

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